

ABSTRACT

Disclosed is a friction stir welding apparatus of a piston for a swash plate type compressor with variable capacity, which integrally bonds two piston members of round section with each other through friction stir welding without forming any hole in welded portions of the piston members, thereby improving durability of the welded portions and easily bonding the piston members by size regardless of the size of the outer diameter of the piston members. The friction stir welding apparatus includes: rotation supporting means for rotatably supporting first and second piston members coaxially coupled to each other; a welding means rotatably inserted into welded portions of the first and second piston members supported on the rotation supporting means, for carrying out friction stir welding along the rotation direction of the first and second piston members; support rollers elastically mounted on the lower portions of the piston members to arrange central axis lines of the piston members on central axis lines of the rotation supporting means when the piston members are supported on the rotation supporting means, and to vertically move within a predetermined height(H) range while supporting the piston members; and transferring means for transferring the welding means from the welded portions to a predetermined position after the friction stir welding of the welded portions by means of the welding means.